Enhancing the Reflective Capabilities of Professional Design Practitioners

Stuart G. English, Northumbria University, Newcastle, UK

Abstract

According to Schon (1987), professional education should be centred on enhancing the practitioner's ability to reflect before taking action. This is important to the designer for two reasons. The first of these concerns real world professional situations, which are rarely clear and lack 'right answers', the successful professional requires the ability to learn by doing in order to handle complex and unpredictable problems with confidence. The second concerns the nature of the designer's relationship with design problems themselves. The designer's exploration of his/her own awareness develops in parallel with problem definition. Dorst and Cross (2001) describe this as a co-evolution of problem and solution and English (2006) argues that we cannot frame the problem without including in that design space the person who designs. Thus the process of engaging with a design problem involves a journey of self-exploration for the designer who needs to be appropriately equipped for unknown terrain. A distance learning Masters programme was validated in 1999, supporting professional designers to develop as reflective practitioners. The course has run successfully for eight years with students based in Brazil, Canada, UK and Ireland, Holland, Greece, Arab Emirates, Malaysia, Thailand, Hong Kong and China. The author draws on the experience of delivering this programme to describe two approaches that have evolved in parallel to nurture the development of the reflective practitioner. The first of these encourages students to develop an action research process by applying reflective practice models as organising tools and recording templates. The second clarifies direction and focuses action to address fully and precisely the individual student's aims, insights and motivation. Both these approaches encourage a synergy between practice and theory and involve visual modelling and collaborative reflection through communities of practice. The application of these approaches is shown to generate fundamental insights that positively influence the future actions of students in professional practice. The paper concludes that the consciousness of the expert designer is a critical element of design space and summarises how the disciplined process and clear focus of the approaches discussed contribute to the development of personal confidence and awareness.

Keywords

creativity; reflective practice; design process (es)

Introduction

Design education is commonly project based and assessment often focuses on the objective aims of design solutions. Whilst the academic community acknowledge the need for students to be reflective and to take responsibility

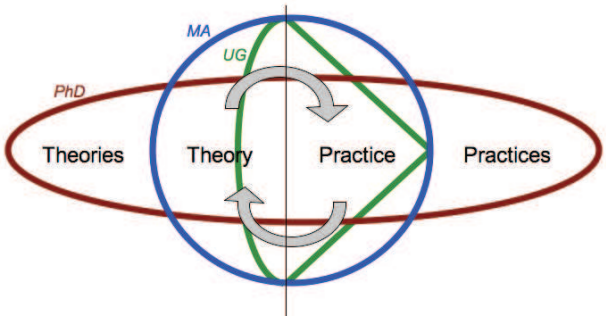
for their own learning, these factors are rarely recognised and assessed as primary criteria of a design course. Thus if we ask a typical design student (or design professional) 'what will you do?' we are likely to get an answer like 'I'll design a valuable function and an experience'. We do not tend to get an answer like 'I'll identify my motivation and create my future professional self'. The typical design student is interested in designing things and the typical tutor is interested in assessing the things designed. Neither the typical student nor the typical tutor gives primary emphasis to the development of capabilities and self-awareness in the context of a community of practice. This leads to the kind of limited focus described by Conejo (2008) who states 'I was actively engaged in the process of design, hardly aware of how new knowledge was forming and why such knowledge would produce results'. It is possible that design schools may limit their effectiveness by maintaining a culture that places greater emphasis on the designed outcome, than on the student's awareness gained through their reflection on the journey.

In this paper I consider how designers can develop as confident, responsible professionals whilst operating in dynamic and uncertain situations. Beginning by observing the relationship between student's development of theory and practice, the paper goes on to describe two approaches that have evolved in parallel to support the development of professional designers through a distance learning masters programme. I analyse how students have transitioned in their learning and reflect on some of the assumptions and teaching models that the programme's emphasis on reflective practice has highlighted. In conclusion I present a reflective practice model that typifies the approach adopted in the programme and summarise the kinds of events that lead to student's insights.

Synergy between theory and practice

Design problems are not dissimilar to real world professional situations in that they are fluid and unknown. Both involve learning by doing and generate a direct relationship between theory and practice where theory guides practice and practice informs theory. Thus the process of engaging with a design problem involves a journey of self-exploration for the creative professional. Figure 1 describes the relationship between theory and practice observed at different academic levels of design study. Undergraduate programmes (shown outlined in green) aim to equip the student with a level of practical capability necessary to operate successfully in a professional environment. Hence the focus tends to be on skills of practical realisation supported by sufficient theoretical knowledge to underpin this. The advantage of this approach is that bachelors graduates are equipped to go directly into professional situations however the success of these graduates seems to be dependent on the working environments they happen to find themselves in. Masters students on the other hand tend to give equal emphasis to the development of both theory and practice and aim to achieve personal mastery (shown outlined in blue). This is a far more rounded approach and rather than opportunities being dictated by working situations the typical

masters graduate is far more able to influence the professional environments



they find themselves in.

Figure 1: Relationship of theory and practice.

Whilst the relationship of theory and practice at Masters level is more integrated than at undergraduate level, Masters students are concerned with their personal application of theory in their own practice. This develops the effectiveness of the individual designer but does not tend to lead to new knowledge in the field. PhD students however are concerned with the relationship of a range of theories in a variety of practice situations (this is represented outlined in red). PhD students are concerned with the development of new knowledge in the field.

The trap that many professional designers fall into is to spend their time engrossed in the current design problem at the expense of directing their own development. Naturally the danger is to concentrate almost entirely on the practice, leading to frustration with work and a lack of personal and professional fulfilment. In supporting the professional design practitioner the researcher aims to facilitate a synergy between theory and practice. However as Lawler (1985, p3) states 'if research is to jointly contribute to theory and practice, it must be designed to accomplish this objective'.

Learning by doing

Action research and creative design

Lewin's (1946) concept of action research has been developed and adapted by many researchers (Kolb 1984, Schon 1983 and 1987, Carr and Kemmis 1986, McNiff 1988 McKearnan 1994)

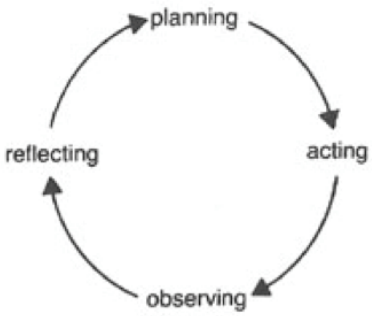


Figure 2: Action research cycle

The typical structure of action research process is described by Zuber-Skerritt (1992 p11) as 'a spiral of cycles of action and research consisting of four major moments: plan, act, observe, and reflect. The plan includes problem analysis and a strategic plan; action refers to the implementation of the strategic plan; observation includes an evaluation of the action by appropriate methods and techniques; and reflection means reflecting on the result of the evaluation and on the whole action and research process, which may lead to the identification of a new problem or problems and hence a new cycle of planning, acting, observing and reflecting.' This is represented in figure 2 as a perpetual cycle.

Swann (2002, p53) compares this process with the iterative process of design (Figure 3) and points out that 'the significant difference to research per se is emphasized in that crucial moment of synthesis, when all the problem parts are brought together in a holistic solution.'

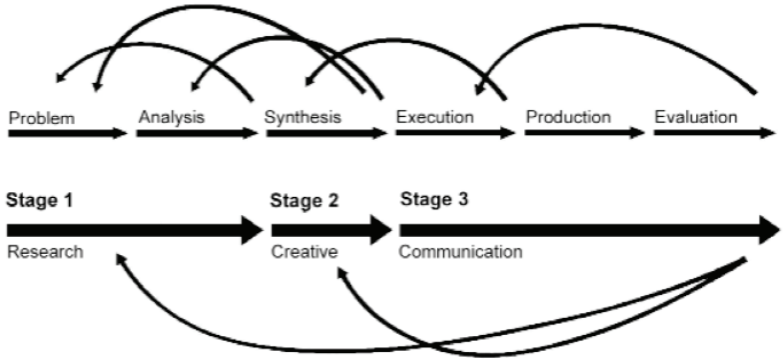


Figure 3: Design process model (Swann 2002)

Dorst and Cross (2001) consider this creative event as occurring in the pairing of problem space and solution space, or in other words the objective problem and the subjective appreciation are combined in the creative event. This means that as well as framing the problem, designers must also be concerned with the development of their own awareness through reflective practice.

Reflective practice in design education

Design students are encouraged to develop their practice by reflecting on their own processes and capabilities, however the nature of this reflection varies according to level. This is shown in English and Young's model (English & Steane 2007) (Figure 3). In this model undergraduate process is characterised by hindsight reflection. This reflection on practice happens after the event, usually after the design project is complete, and thus the insights gained through one project can be applied to deal with the next project more effectively. Masters students demonstrate simultaneous reflection or reflective practice, this occurs within the process of designing and hence any insights have a more direct influence on the students' immediate actions.

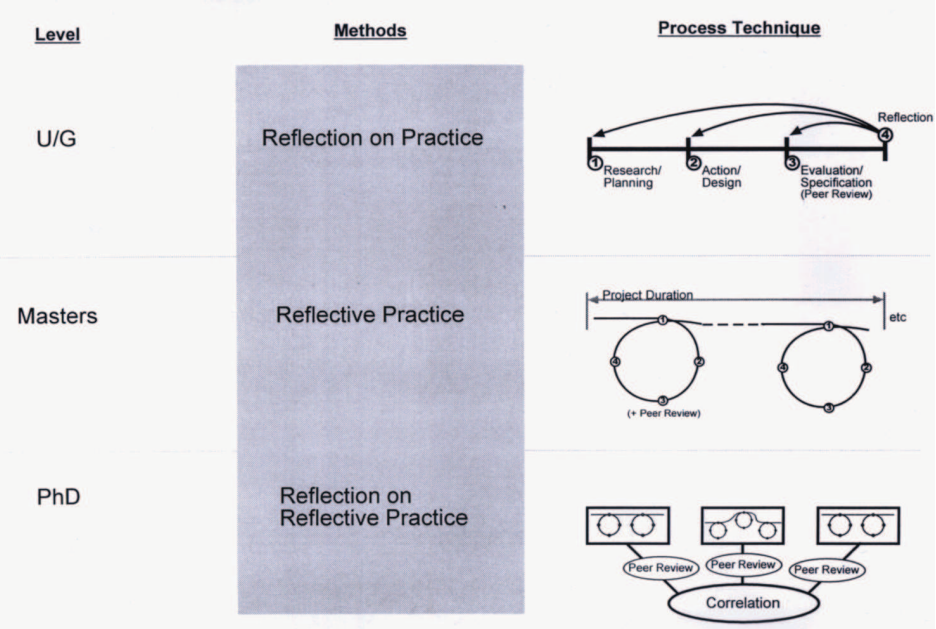


Figure 4: English and Young's Levels of reflection model (English & Steane 2007)

A distance learning masters programme for professional practitioners

In 1996 staff at Northumbria University, the Design Council, the Chartered Society of Designers and the Royal Society of Arts met to discuss designers' need for continued professional development. Initiated by this discussion a distance learning masters programme was validated by Northumbria University in 1999. Whilst many design courses aim to assess outcome, the emphasis of this programme is on reflective practice, leaving sufficient flexibility to accommodate professional work in a wide range of disciplines and configurations. Since assessment is based on evidence of process, students are encouraged to generate and become active participants in communities of practice.

The programme employs two approaches that have evolved in parallel to nurture the development of the reflective practitioner:

- a learning plan clarifies direction and focuses action to address fully and precisely the individual professional's aims, insights and motivation. (The learning plan is analogous to the steering wheel since it points the student in the right direction)
- a reflective practice process model operates both as an organising tool and recording template. (The reflective practice model is like the engine since it provides the drive for the professional's engagement with their practice)

The 'right' direction - developing a learning plan

The learning contract or learning plan is a key feature of the postgraduate framework at Northumbria. Whilst it remains flexible throughout the programme, it formulates and guides the direction of the students study with

the aim of aligning motivation and endeavor. An initial plan is commenced by completing a proforma that outlines:

- Current design practice; where the student works and what they design.
- The student's self-analysis of their strengths and weakness'.
- Skills, knowledge and experience the student wishes to acquire or develop.
- Ways in which the student wishes to develop their design process and method of practice.
- The global context for the student's design practice and the focus of their continued professional development within that context.
- Potential collaborators.
- Possible sources of research.
- The student's overall objective in studying on this programme.

The student drafts the first learning plan as a text document that outlines initial thoughts and motivations however it is important to recognise that this is under continuous development, as the student's awareness develops so too do the aims outlined in their learning plan. Another important issue is the interrelationship of the student's various aspirations, some of which may be diametrically opposed. The student must appreciate their learning and development as an integrated whole with clear direction and form, not merely as a wish list. For this reason student aims are mapped through the use of a number of creative thinking tools more commonly used to define 'problem space'. (figure 5)

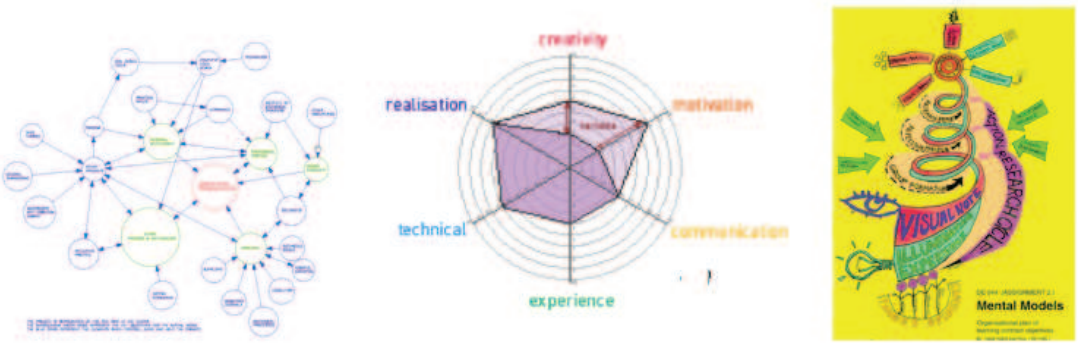


Figure 5: left mind map of learning plan, middle & right mental models.

Students are asked to explore the organisation of their learning plan by creating:

- A Universal – a string of concepts that completely and exclusively describes the area for engagement. This may simply be in the form of a sentence. For example 'Fashion design practice with clear focus and disciplined process of observational teaching and learning to understand self.' (Neville 2007)

- An integrated Mind Map – An interrelated lattice of concepts exploring the relationship of issues constituting the student's learning plan. (Figure 4 left)
- A Mental Model developed from the above mind map with the purpose of describing a useful way of seeing the student's learning plan. (Figure 4 middle and right)

Whilst these are all tools for understanding design space, using them in this context helps students to:

- Demonstrate the principles of organisational perception, mental modelling and mapping.
- Demonstrate the ability to communicate using sensory, conceptual and relational means.
- Show sensitivity to appropriateness of methods throughout the design process.
- Create an organisational plan as a mental model representation.
- Develop alternative ways of seeing.
- Increase design communication effectiveness.
- Model strategies through the definition of problem space and the mapping of concepts through the use of relational patterns.
- Show ability to reframe perceptions of value in human experience and interaction.

Applying reflective practice models to professional situations

Students are asked to present their own reflective practice process model based on their background reading and understanding of action research principles and to implement this into their day to day practice through the use of a recording template derived from this process model. Practitioners usually find it necessary to alter or develop their reflective practice model as a result of applying it in action and students are asked to record any changes they make and why they make them.

Through this process students:

- Demonstrate an awareness of the practicalities of the planning, action, observation, evaluation and reflection cycle of action research methods in the context of different areas of design practice.
- Show an understanding of the process of recording reflective practice project materials to effectively enable reflection and evaluation.
- Create action research and reflective practice models appropriate to their own working context.
- Develop process models incorporating reference to recording and collaborating methods.

Students are required to present the development of a design practice process model that evidences related research both in its creation and continuous improvement. The student's reporting of their own personal experience provides an overview of their intellectual engagement with the principles of action research and reflective practice.

Development of process models incorporating reference to recording and collaborating methods is key to assessment.

Thompson's model (2006) shown in figure 6 operates both as a process model and a recording template.

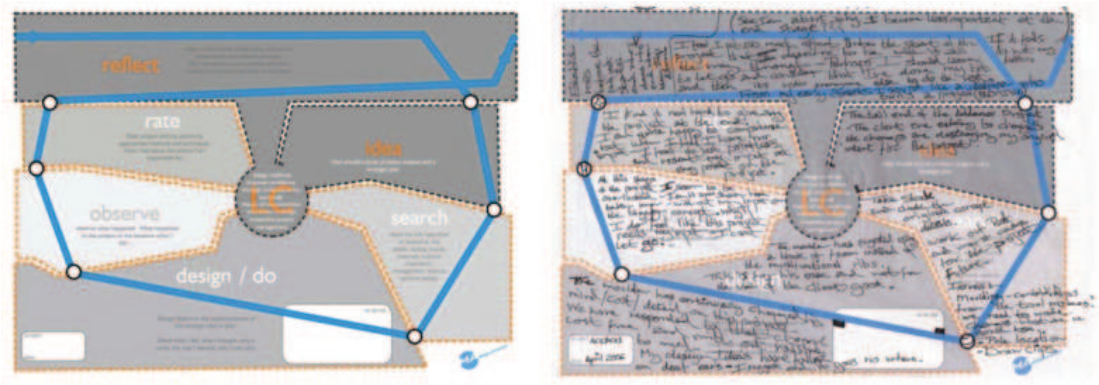


Figure 6: Thompson (2006) Recording template. Left-empty and right-completed

Pill's model (2005) (Figure 7) on the other hand provides the framework for recording as shown in figure 8.

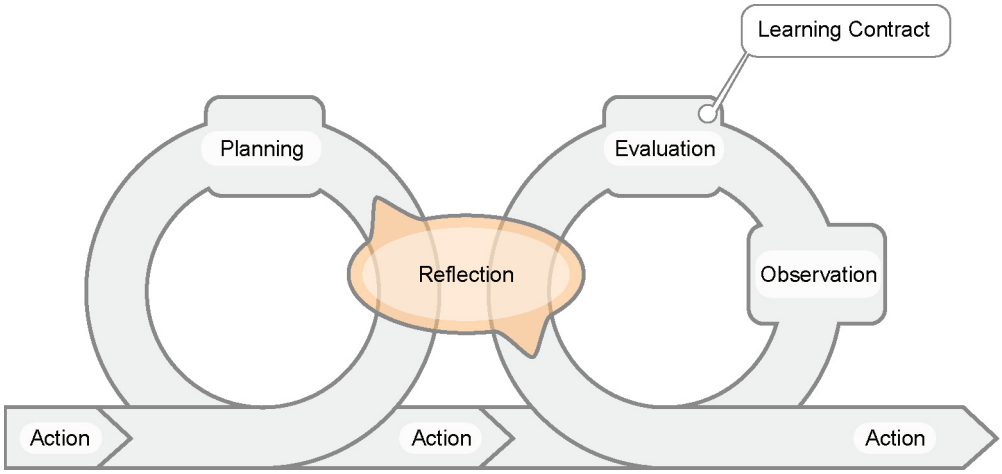


Figure 7: Pill (2005) Reflective practice model.

In describing his model Pill (2005) explains `My reflective model takes into account the fact that LC (Learning Contract) issues change so can be put into when evaluating or planning the two stop and think section of the diagram. Reflection can happen once or twice depending on the outcomes of the observation or evaluations.'

Figure 8: Pill (2005) Examples of completed recording templates, colour coded to identify planning, action, observation, evaluation and reflection.

Pill uses this recording template (Figure 8) to distinguish reflection occurring over different periods (Figure 9) and to describe 'reflective strings' (Figure 10)

Short Reflection	Medium Reflection	Long Reflection
I decided to make a model based on an image I had seen. The model has helped to work out ideas for CAD. I should take more care over making models though as I many too many silly mis-takes.	I often rush later stages of a project when I know what the outcome is going to be. I enjoy the learning – through-out a project. I need to build in new leaerning throughout the design process – choose specific influences.	The first experience of the surprise phenomeneon.

Figure 9: Pill (2005) Short term, medium term and long term reflection.

Figure 10: Pill (2005) Reflective String

Student transition

As students progress through the programme they pass milestones in their own development. The first challenge students face is to understand action research as a practical process. This is often just a case of reading key texts.

Once the theory is understood an appropriate way to apply this into action is constructed but the real transition here is to have this work in practice.

The student must understand their own motivation within their professional context and whilst the context can be researched, students' ability to be sure of their own direction demands a lot of reflection.

The skill to observe what happens in practice without jumping to conclusions provides a triangulation point that acknowledges the student's internal dialogue about the situation. As students develop this ability they become more aware of the subconscious judgements they make through knowing in action. It is often particularly useful to explore the feelings and beliefs that lead to such judgements within communities of practice.

Perhaps the most important transition point involves the development of a willingness to engage with and address issues in practice by stepping outside ones comfort zone. By pro-actively addressing insights that arise through reflection the practitioner is able to develop a self-awareness and remove barriers to accomplishment that are based on assumption and habit.

Almost all students report increased confidence by the end of the programme and are generally at ease in fluid and uncertain situations of design space and professional practice.

Students become aware of their capabilities and know where they are going in their practice. More than 50% of students change jobs or step into more influential positions either during or immediately after the course.

The culture of a design school

In reflecting on the delivery of the programme I have become aware that many academic colleagues find it difficult to escape the pervasiveness of the project as a vehicle for teaching and assessing design.

The table shown in figure 11 aims to address this issue by encouraging students to distinguish actions undertaken as part of a design project from the capabilities they employ to do this. This table can be used both to review action taken and to plan future action with either the project leading the development of capabilities or the employment of capabilities leading the project.

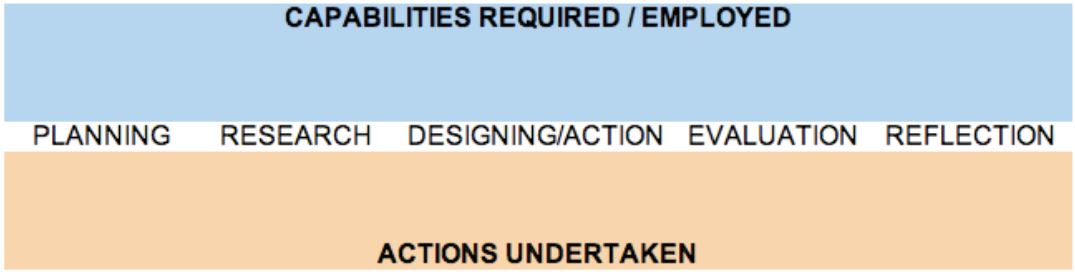


Figure 11: Table used to map project requirements onto the designer's capabilities.

It is perhaps helpful that although engaged closely with individual academics in the design school, distance-learning students are steeped in their own professional environments and may never visit the university. This makes it easier for these students to focus on their own development as a primary academic aim whilst allowing the client and the user to judge the success of the 'project' or designed outcome.

Conclusion

Unlike a solicitor or an accountant the professional designer generally presents a portfolio of past work to a potential commissioner to demonstrate capability and approach. This is because design decisions are not purely objective but rather involve the subjective appreciation of the designer as an integral part of the design space (English 2006). Dorst and Cross (2001) consider this as a creative event in the pairing of problem space and solution space. The nature and value of a design concept must therefore be described by both the objective intent and crucially by the awareness of the individual designer. So whilst reflective practice can be seen as a useful process for professional development it is also of key importance in the framing of design space.

Figure 12 shows a simplified reflective practice model that summarises the typical approach taken by students studying MA Design Professional Practice at Northumbria. The model distinguishes three influences on the planning part of an action research cycle; firstly the external influence of the design project or brief, secondly the individual's aspirations and motivations, described in this paper as a learning plan, and thirdly, the insights the designer gains through reflection. These three issues might also be considered as influences on problem space/solution space pairing.

Figure 12: Typical reflective practice model including influences on planning

The generic reflective practice model shown in figure 12 is developed from Lewin's (1952) cycle to include research and evaluation. '*Research*' distinguishes what needs to be found out from what is planned and takes place before action (In Lewin's model research can be regarded as an

action). *`Evaluation´* is an important addition because it helps to clarify both observation and reflection. The practitioner benefits from being able to distinguish the facts of what happened (observation) from any judgement made regarding the success of action taken. This helps the designer to appreciate their own assumptions and purpose as part of the process rather than assuming this as matter of fact. The inclusion of *`evaluation´* also helps to distinguish project based aspects, the success of which can be evaluated against the objectives of the brief, from personal reflection and the development of the designer's own awareness.

What kind of events lead to insights?

Issues of approach (that might be observable to the outsider) are often hidden to the individual designer. Insights can be revealed through reflection but this is not simply a matter of nurturing an action research process, the reflective practitioner must know what to look for. Many insights can be traced back to the experience of surprise (Pill 2005) or disaster, these tend to be relatively easily accessed over a few cycles and are typical of students involved in reflective practice for the first time. The more fundamental insights into personal approach reveal themselves after a longer period of reflective practice often through persistent frustration with what appear to be relatively minor issues. It is often only through reflection on reflective practice, i.e. by reviewing recorded reflection in practice over some months, that a repeating issue can be revealed and addressed.

The benefits of enhancing reflective capabilities are summarised by MA Design Professional Practice student Ian Thompson (2006) 'I am now aware of the barriers I have previously placed in my way and have further developed thinking methods to remove these restrictions. I feel so enlightened and at the same time as foolish to think that it was just my way of thinking that stopped me doing things previously.'

References

Carr, W. and Kemmis, S. (1986) Becoming Critical: Education, Knowledge and Action Research. Basingstoke: Falmer Press

Conejo, M. (2008) Action research, reflective practice for designers. Unpublished report for module de0885 Northumbria University, Newcastle.

Dorst, K & Cross, N (2001) Creativity in the design process: co-evolution of problem-

solution. Design Studies Volume 22, Issue 5, September, Pages 425-437

English, S. (2006) Design Thinking - Value Innovation - Deductive Reason and the

Designers Choice. Design Research Society Conference, Lisbon 1-4 November.

English, S. & Steane, J. (2007) Openfolio.com (1992-2007): From Learning Portfolios to Research Communities. Connected International Conference on Design Education, Sydney 9-12 July.

Kolb, D. (1984) Experiential Learning. Experience as the Source of Learning and Development. Englewood Cliffs, New Jersey: Prentice-Hall

Lawler, E.E. (1985) Challenging traditional research assumptions. In E.E. Lawler, A.M. Mohrman, S.A. Mohrman, E.E. Ledford and T.G. Cummings, Doing research that is useful for theory and practice. San Francisco: Jossey-Bass.

Lewin, K. (1946) Action research and minority problems. J Soc. Issues 2(4): 34-46.

Lewin, K. (1952) Field Theory in Social Science. Selected Theoretical Papers edited by D. Cartwright. Tavistock Publications, London.

McKernan, J. (1994) Curriculum Action Research, (2nd. ed.) Kogan Page, London, UK.

McNiff, J. (1988) Action Research-Principles and Practices, London, Macmillan

Neville, T. (2007) Creative thinking. Unpublished report for module de0873 Northumbria University, Newcastle.

Pill, S. (2005) MA Design Professional Practice Thesis. Unpublished. Northumbria University, Newcastle.

Schon, D. (1983) The Reflective Practitioner: how Professionals Think in Action. New York: Basic Books

Schon, D. (1987) Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning. San Francisco: Jossey-Bass

Swann, C. (2002) Action Research and the practice of design, Design Issues Vol 18

No 2 Winter 2002, Massachusetts Institute of Technology.

Thompson, I. (2006) MA Design Professional Practice Thesis. Unpublished Northumbria University, Newcastle.

Zuber-Skerritt, O. (1992) Action Research in Higher Education London: Kogan Page.

Stuart. G. English

Stuart. G. English is Principal Lecturer at Northumbria University School of Design specialising in the theory, processes and practice of design innovation. Stuart's research explores how individuals and organisations can think about problems to unlock their creative potential and reveal value. This approach considers the person who designs as an integral part of the design space and involves the development of awareness through reflective practice.

Trained as an Industrial Designer, Stuart has worked in the field of Design Innovation for 20 years. He Co-founded Glenelg Product Design in 1990 and at Northumbria has championed design learning innovation whilst leading BA and MA courses in design for industry and professional design practice. Stuart's research challenges the designer's capacity to be innovative in terms of both product designs and design processes. His practice has facilitated new product development through an inclusive approach based on design led

entrepreneurship. This addresses multi and cross-disciplinary contexts, bounded by clarity of market objectives and has led to numerous filed patents. Stuart is currently supporting the regional development agenda through 'Ideas-Lab'; a ONE North East funded initiative with IP specialists at the legal firm Ward Hadaway.